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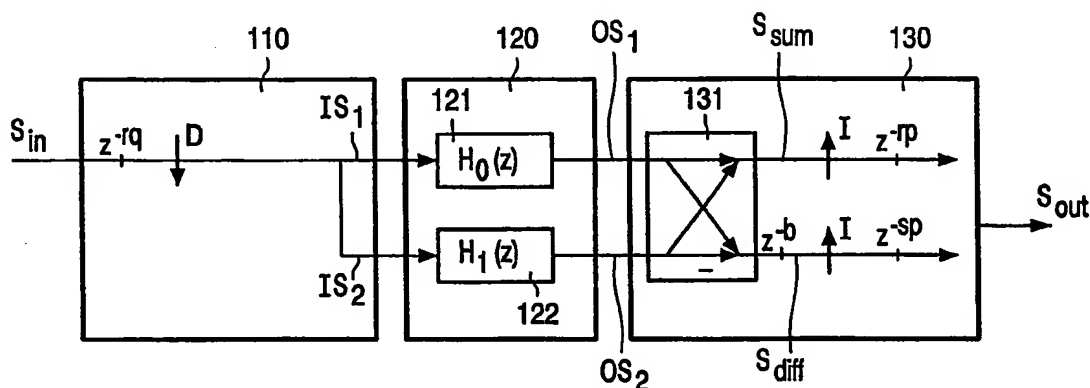
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[Continued on next page]

(54) Title: MULTIRATE FILTER AS WELL AS DISPLAY SYSTEM AND MOBILE TELEPHONE COMPRISING SAID MULTIRATE FILTER



(57) Abstract: A multirate filter according to the invention comprises, a) an input unit (10) for receiving an input signal ( $S_{in}$ ) and for providing a plurality of intermediate signals ( $IS_1$ ,  $IS_2$ ) in response to said input signal, b) a filter unit (20) coupled to the input unit (10), and c) an output unit (30) coupled to the filter unit (20), for generating an output signal ( $S_{out}$ ). The filter unit (20) comprises at least a first and a second filter module (21, 22), with a transfer function  $H_0(z)$  and a transfer function  $H_1(z)$  respectively, which are mutually related according to the relations  $H_0(z) = c_0(H_B(z) + M_{\alpha,\psi}H_B(z))$  and  $H_1(z) = c_1(H_B(z) + M_{\alpha,\psi}H_B(z))$  wherein  $M_{\alpha,\psi}(H_B(z)) = \alpha z^{-2\psi} H_B^*(z^{-1})$ , and wherein Formula (I), being the z-transform of  $h_b[m]$ . The multirate filter comprises a combination unit (11) coupled to said filter modules (21, 22) for generating a first combination signal ( $S_{sum}$ ) and a second combination signal ( $S_{diff}$ ).



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## INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER  
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Minimum documentation searched (classification system followed by classification symbols)

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Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, COMPENDEX, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 44 02 632 A (ANT NACHRICHTENTECH) 3 August 1995 (1995-08-03) the whole document	1,9
A	NGUYEN T Q ET AL: "STRUCTURES FOR M-CHANNEL PERFECT-RECONSTRUCTION FIR QMF BANKS WHICH YIELD LINEAR-PHASE ANALYSIS FILTERS" IEEE TRANSACTIONS ON ACOUSTICS, SPEECH AND SIGNAL PROCESSING, IEEE INC. NEW YORK, US, vol. 38, no. 3, 1 March 1990 (1990-03-01), pages 433-446, XP000116523 ISSN: 0096-3518 the whole document	1,9

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>56-93: "MULTIRATE DIGITAL FILTERS, FILTER BANKS, POLYPHASE NETWORKS, AND APPLICATIONS: A TUTORIAL" PROCEEDINGS OF THE IEEE, IEEE. NEW YORK, US, vol. 78, no. 1, 1990, pages 56-93, XP000125845 ISSN: 0018-9219 the whole document</p>	1,9

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